

# SEQUENCE LISTING

<110> Jørgensen, Steen Troels  
Rasmussen, Michael Dolberg  
Andersen, Jens Tønne  
Olsen, Carsten

<120> Multiple insertion of genes

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<160> 50

<170> PatentIn version 3.1

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<223> DNA sequence of the dal-gene encoding D-alanine racemase

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<222> (2685)..(2685)

<223> n denotes an undetermined nucleotide

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120

gctttctgcc tgcggccaaa aatcgcaaga agatgttgat acggggctcg acaagaaggc

180

aaaagaatac acgtcctata aggcaaaagc gaaaatgacc attgaaacgg ggaatgaccc

240

gcaggagtac aacgtggaaa tctggcataa aaaaccttct ctttaccggg tctatttggg	300
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Met Ser Leu Lys	
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Pro Phe Tyr Arg Lys Thr Trp Ala Glu Ile Asp Leu Thr Ala Leu Lys	
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gaa aac gtc cgc aat atg aag cgg cac atc ggc gag cat gtc cgc ctg	1410
Glu Asn Val Arg Asn Met Lys Arg His Ile Gly Glu His Val Arg Leu	
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atg gcc gtc gtt aaa gcg aat gcc tac gga cac ggg gat gca cag gta	1458
Met Ala Val Val Lys Ala Asn Ala Tyr Gly His Gly Asp Ala Gln Val	
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gcg aag gcg gct ctt gca gaa ggg gcg tcc att ctt gct gtg gct tta	1506
Ala Lys Ala Ala Leu Ala Glu Gly Ala Ser Ile Leu Ala Val Ala Leu	
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ttg gat gaa gcg ctt tcg ctg agg gcg cag ggg att gaa gaa ccg att	1554
Leu Asp Glu Ala Leu Ser Leu Arg Ala Gln Gly Ile Glu Glu Pro Ile	
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Leu Val Leu Gly Ala Val Pro Thr Glu Tyr Ala Ser Ile Ala Ala Glu	
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aag cgc att atc gtg act ggc tac tcc gtc ggc tgg ctg aaa gac gtg	1650
Lys Arg Ile Ile Val Thr Gly Tyr Ser Val Gly Trp Leu Lys Asp Val	
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ctc ggt ttt ctg aat gag gcc gaa gct cct ctt gaa tat cat ttg aag	1698
Leu Gly Phe Leu Asn Glu Ala Glu Ala Pro Leu Glu Tyr His Leu Lys	
120 125 130	
atc gac acg ggc atg ggc cgc ctt ggc tgc aaa acg gaa gaa gag atc	1746
Ile Asp Thr Gly Met Gly Arg Leu Gly Cys Lys Thr Glu Glu Glu Ile	
135 140 145	
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Lys Glu Met Met Glu Met Thr Glu Ser Asn Asp Lys Leu Asn Cys Thr	
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Gly Val Phe Thr His Phe Ala Thr Ala Asp Glu Lys Asp Thr Asp Tyr	
165 170 175 180	
ttc aac atg cat ctt gac cgc ttt aaa gag ctg atc agc ccc ttc ccg	1890
Phe Asn Met His Leu Asp Arg Phe Lys Glu Leu Ile Ser Pro Phe Pro	
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Leu Asp Arg Leu Met Val His Ser Ser Asn Ser Ala Ala Gly Leu Arg	
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Phe Arg Glu Gln Leu Phe Asn Ala Val Arg Phe Gly Ile Gly Met Tyr	
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Gly Leu Ala Pro Ser Thr Glu Ile Lys Asp Glu Leu Pro Phe Arg Leu	
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cgg gaa gtg ttt tcg ctt cat acc gaa ctc acc cat gtg aaa aaa att	2082
Arg Glu Val Phe Ser Leu His Thr Glu Leu Thr His Val Lys Lys Ile	
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Lys Lys Gly Glu Ser Val Ser Tyr Gly Ala Thr Tyr Thr Ala Gln Arg	
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Asp Glu Trp Ile Gly Thr Val Pro Val Gly Tyr Ala Asp Gly Trp Leu	
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Arg Arg Leu Ala Gly Thr Glu Val Leu Ile Asp Gly Lys Arg Gln Lys	
295 300 305	
ata gca ggg aga atc tgc atg gac cag ttc atg att tcc ctt gcc gaa	2274

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Glu Tyr Pro Val Gly Thr Lys Val Thr Leu Ile Gly Lys Gln Lys Asp	
325 330 335 340	
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Glu Trp Ile Ser Val Asp Glu Ile Ala Gln Asn Leu Gln Thr Ile Asn	
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tat gaa att acc tgt atg ata agt tca agg gtg ccc cgt atg ttt ttg	2418
Tyr Glu Ile Thr Cys Met Ile Ser Ser Arg Val Pro Arg Met Phe Leu	
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Ser	
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tgctcgaggc gaaagagcaa ctttttttgt gttcaaaaat aacaatacga tataatggta	3299
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His Val Arg Leu Met Ala Val Val Lys Ala Asn Ala Tyr Gly His Gly  
 35 40 45

Asp Ala Gln Val Ala Lys Ala Ala Leu Ala Glu Gly Ala Ser Ile Leu  
 50 55 60

Ala Val Ala Leu Leu Asp Glu Ala Leu Ser Leu Arg Ala Gln Gly Ile  
 65 70 75 80

Glu Glu Pro Ile Leu Val Leu Gly Ala Val Pro Thr Glu Tyr Ala Ser  
 85 90 95

Ile Ala Ala Glu Lys Arg Ile Ile Val Thr Gly Tyr Ser Val Gly Trp  
 100 105 110

Leu Lys Asp Val Leu Gly Phe Leu Asn Glu Ala Glu Ala Pro Leu Glu  
 115 120 125

Tyr His Leu Lys Ile Asp Thr Gly Met Gly Arg Leu Gly Cys Lys Thr  
 130 135 140

Glu Glu Glu Ile Lys Glu Met Met Glu Met Thr Glu Ser Asn Asp Lys  
 145 150 155 160

Leu Asn Cys Thr Gly Val Phe Thr His Phe Ala Thr Ala Asp Glu Lys  
 165 170 175

Asp Thr Asp Tyr Phe Asn Met His Leu Asp Arg Phe Lys Glu Leu Ile  
 180 185 190

Ser Pro Phe Pro Leu Asp Arg Leu Met Val His Ser Ser Asn Ser Ala  
 195 200 205

09928347 "081301

Ala Gly Leu Arg Phe Arg Glu Gln Leu Phe Asn Ala Val Arg Phe Gly  
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Ile Gly Met Tyr Gly Leu Ala Pro Ser Thr Glu Ile Lys Asp Glu Leu  
225 230 235 240

Pro Phe Arg Leu Arg Glu Val Phe Ser Leu His Thr Glu Leu Thr His  
245 250 255

Val Lys Lys Ile Lys Lys Gly Glu Ser Val Ser Tyr Gly Ala Thr Tyr  
260 265 270

Thr Ala Gln Arg Asp Glu Trp Ile Gly Thr Val Pro Val Gly Tyr Ala  
275 280 285

Asp Gly Trp Leu Arg Arg Leu Ala Gly Thr Glu Val Leu Ile Asp Gly  
290 295 300

Lys Arg Gln Lys Ile Ala Gly Arg Ile Cys Met Asp Gln Phe Met Ile  
305 310 315 320

Ser Leu Ala Glu Glu Tyr Pro Val Gly Thr Lys Val Thr Leu Ile Gly  
325 330 335

Lys Gln Lys Asp Glu Trp Ile Ser Val Asp Glu Ile Ala Gln Asn Leu  
340 345 350

Gln Thr Ile Asn Tyr Glu Ile Thr Cys Met Ile Ser Ser Arg Val Pro  
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Leu Pro Asp Gln Ser  
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